

Alice 2.5

Statistical Analysis

Comparing two sample averages

Instructions for Use

This computer application aims at showing whether you may consider that there is a significant difference between the averages of two sets of numerical data. The calculation is based on the Student's "*t*" distribution. The significance level is 95 % ; therefore the risk of error is 5 %.

The test is valid only when the numerical sets are normally distributed. We advise you to check this assumption with a graphical method (normal probability paper). Otherwise, a non-parametric test can be used successfully.

In this program, the number of numerical data of each set can range from 3 to 12. (They are not necessarily equal). These numbers cover most cases in research, industry, education and administration. For higher numbers, we suggest you should use a test based on comparison of ranks. Data can be integers or fractional numbers, positive or negative, for example : - 0.064 ; 0.118 ; 20.5

You can display a double histogram by clicking on the Menu.

The "*t*" distribution and the related test of statistical significance were developed in England by William Gosset (1876-1937) in order to make computations on small samples. He worked in touch with Fisher, Neyman and Pearson, and his works are at the root of the statistical analysis methods. Statisticians know him better through the pseudonym *Student*, under which his works were published by the journal *Biometrika*.

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